

WHAT IS CLAIMED IS:

1. 1. An ink jet recording apparatus, comprising:
 2. a recording head including a nozzle orifice communicated with a pressure generating chamber;
 3. a pressure generator, which varies pressure of ink in the pressure generating chamber; and
 4. a controller, which drives the pressure generator to eject ink droplets from the nozzle orifice such that a plurality of flushing operations are intermittently repeated with a first time interval, when a recording operation of the recording head is not performed, each flushing operation including a plurality of ink ejections repeated for a predetermined times with a second time interval which is shorter than the first time interval.
1. 2. The ink jet recording apparatus as set forth in claim 1, wherein an ejection frequency in a final flushing operation is higher than an ejection frequency in an initial flushing operation.
1. 3. The flushing control method as set forth in claim 2, wherein an ejection frequency in a latter flushing operation is higher than an ejection frequency in a former flushing operation
1. 4. The flushing control method as set forth in claim 1, wherein the repeated number of ink ejection in a final flushing operation is greater than the repeated number of ink ejection in an initial flushing operation

5. The flushing control method as set forth in claim 4, wherein the
repeated number of ink ejection in a latter flushing operation is greater than the
repeated number of ink ejection in a former flushing operation.
6. The ink jet recording apparatus as set forth in claim 1, wherein the
controller drives the pressure generator to vibrate a meniscus of ink in the
nozzle orifice between the respective flushing operations.
7. The ink jet recording apparatus as set forth in claim 6, wherein the
meniscus of ink is vibrated such an extent that an ink droplet is not ejected
from the nozzle orifice.
8. The ink jet recording apparatus as set forth in claim 6, wherein the
pressure generator is driven at the maximum driving frequency thereof to
vibrate the meniscus of ink.
9. The ink jet recording apparatus as set forth in claim 1, the controller
drives the pressure generator to vibrate a meniscus of ink in the nozzle orifice
before an initial flushing operation is performed.
10. The ink jet recording apparatus as set forth in claim 1, wherein:
the recording head performs the recording operation while moving in
a main scanning direction; and
the flushing operations are performed when the recording head is in a

5 stand-by state which is defined as a time period from when the recording head
6 stops moving to when the recording head starts moving.

1 11. The ink jet recording apparatus as set forth in claim 10, further
2 comprising a timer, which measures a time period of the stand-by state,
3 wherein the repeated number of ink ejections in the respective
4 flushing operation is determined in accordance with the measured stand-by
5 time period.

1 12. The ink jet recording apparatus as set forth in claim 10, further
2 comprising a timer, which measures a time period of the stand-by state,
3 wherein:

4 the controller drives the pressure generator to vibrate a meniscus of
5 ink in the nozzle orifice; and
6 a vibrating number is determined in accordance with the measured
7 length of the stand-by time period.

1 13. The ink jet recording apparatus as set forth in claim 1, wherein the
2 repeated number of ink ejection in the respective flushing operations is
3 determined in accordance with the type of ejected ink

1 14. The ink jet recording apparatus as set forth in claim 6, wherein a
2 vibrating number of the pressure generator is determined in accordance with
3 the type of ejected ink

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1 15. The ink jet recording apparatus as set forth in claim 9, wherein a
2 vibrating number of the pressure generator is determined in accordance with
3 the type of ejected ink.

1 16. The ink jet recording apparatus as set forth in claim 1, wherein the
2 pressure generator is a piezoelectric vibrator which changes the volume of the
3 pressure generating chamber to vary the pressure of ink therein.

1 17. The ink jet recording apparatus as set forth in claim 1, the controller
2 includes:

3 a drive signal generator, which generates a common drive signal
4 including a flushing waveform configured to perform an ink ejection and a
5 meniscus vibrating waveform configured to vibrate a meniscus of ink in the
6 nozzle orifice; and

7 a drive waveform selector, which applies the flushing waveform and
8 the meniscus vibrating waveform selectively to the pressure generator.

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